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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/931,173	08/17/2001	Isabel Haas	1748X/50317	1443

7590 10/07/2003

CROWELL & MORING, L.L.P.  
P.O.Box 14300  
Washington, DC 20044-4300

EXAMINER
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WILLS, MONIQUE M

ART UNIT	PAPER NUMBER
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1746

DATE MAILED: 10/07/2003

6

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/931,173

Applicant(s)

HAAS, ISABEL

Examiner

Wills M Monique

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 17 August 2001.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 August 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

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## **DETAILED ACTION**

### ***Priority***

German foreign priority document(s) 100 40 124.4, filed August 17, 2000 and submitted under 35 U.S.C. 119(a)-(d), has/have been received and placed of record in the file.

### ***Information Disclosure Statement***

The information disclosure statement(s) filed August 17, 2001 has/have been received and complies with the provisions of 37 CFR 1.97, 1.98 and MPEP § 609 .

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1,7 & 13-14 are rejected under 35 U.S.C. 102(e) as being anticipated by Bostaph et al. U.S. Pub. 2003/0031903.

Bostaph teaches a fuel cell unit with anode-side and cathode-side inlets and outlets for fuel and oxidant (Par. 15 & 17). The fuel cell also include a water management providing a forced stream of air 52 across the cathode 22 proves for water 59 accumulated on the cathode 22 to be carried way in an exit flow stream 61. Exit flow stream 61 enters a gas-liquid separator tank 56 where it is separated into remaining air 58 and remaining water 63. Remaining water 63 is collected in the gas – liquid separator tank 56 and returned to the recirculating channel 53 through a membrane and ultimately to the anode fuel cell side of the fuel cell. See paragraph 22. A pump is used to adjust the rate of water separation keeping humidification in the water management device constant (par. 17). The flow rate is inherently adjusted to optimize water separation.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States

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only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 7 & 13-14 are rejected under 35 U.S.C. 102(e) as being anticipated by Frank et al. U.S. Pat. 6,436,563.

Frank teaches a fuel cell comprising: an anode with a respective anode inlet and an anode outlet for a fuel gas; a cathode with a respective cathode inlet for an incoming oxidant gas stream and a cathode outlet for an outgoing oxidant gas stream; an electrolyte between the anode and the cathode; first and second dryers; and valve means connecting the first and second dryers to the cathode inlet and the cathode outlet, whereby, in use, the first dryer can be connected to one of the cathode inlet and the cathode outlet and the second dryer can be connected to the other of the cathode inlet and the cathode outlet, wherein the connections of the dryers can be periodically switched between the cathode inlet and the cathode outlet, whereby one dryer recovers moisture from the outgoing oxidant gas stream and the other dryer humidifies the incoming oxidant gas stream. See column 3, lines 54-68. Further, cycling of multiple dryers control the rate of water separation by ensuring that the incoming air stream is humidified at a reasonably constant level (col. 6, lines 33-38). The flow rate is inherently adjusted to optimize water separation.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1 ,6 & 13-14 are rejected under 35 U.S.C. 102(e) as being anticipated by Frank et al. U.S. Pat. 6,541,141.

Frank teaches a fuel cell comprising: an anode with a respective anode inlet and an anode outlet for a fuel gas; a cathode with a respective cathode inlet for an incoming oxidant gas stream and a cathode outlet for an outgoing oxidant gas stream; an electrolyte between the anode and the cathode; a recirculation conduit including a pump and connected between the anode inlet and anode outlet; and a water separator provided in the recirculation conduit for separating water from the fuel gas exiting the anode; a first fuel inlet connected to the recirculation conduit, for supply of the fuel gas; and a branch conduit connected to the recirculation conduit and a dryer in the branch conduit, the branch conduit including a vent outlet. See column 3, lines 52-66.

Further, cycling of multiple dryers control the rate of water separation by ensuring that the incoming air stream is humidified at a reasonably constant level (col. 5, lines 48-68). The flow rate is inherently adjusted to optimize water separation.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 2-5 & 8-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Frank et al. U.S. Patent 6,436,563 as applied to claims 1 & 8 above, in view of Pedicini et al. U.S. Pub. 2001/0008720 and further in view of Barton et al. U.S. Pub. 2003/0022050.

Frank teaches a fuel cell system as described hereinabove.

But the reference is silent to a fan and drive unit and a housing for the water recovery device having a clear cross section that increases in the direction of flow.

Pedicini teaches that it is conventional to employ air managing devices in electrochemical cell systems including a circulating fan provided convective air flow both in and out of the housing 20 and to circulate and mix gases (par. 48). The fan speed may be adjusted by a drive unit 100 that can set the speed of the fan as a function of current (par. 60). This air management system is employed to control and optimize the humidity exiting the electrochemical cell (par. 6).

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Barton teaches that housing that decreases in the direction of flow rate compresses the fluid supply providing positive displacement of the fluid to increase control of the flow rate by the operator (Par. 70).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to employ the air circulating system of Pedicini in the fuel cell of Frank in order to control and optimize the humidity exiting the electrochemical cell.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to employ the cross-sectional design of Barton in the water management device of Frank in order to providing positive displacement of the fluid to increase control of the flow rate by the operator.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 2-5 & 8-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Frank et al. U.S. Patent 6,6541,141 as applied to claims 1 & 8 above, in view of

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Pedicini et al. U.S. Pub. 2001/0008720 and further in view of Barton et al. U.S. Pub. 2003/0022050.

Frank teaches a fuel cell system as described hereinabove.

But the reference is silent to a fan and drive unit and a housing for the water recovery device having a clear cross section that increases in the direction of flow.

Pedicini teaches that it is conventional to employ air managing devices in electrochemical cell systems including a circulating fan provided convective air flow both in and out of the housing 20 and to circulate and mix gases (par. 48). The fan speed may be adjusted by a drive unit 100 that can set the speed of the fan as a function of current (par. 60). This air management system is employed to control and optimize the humidity exiting the electrochemical cell (par. 6).

Barton teaches that housing that decreases in the direction of flow rate compresses the fluid supply providing positive displacement of the fluid to increase control of the flow rate by the operator (Par. 70).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to employ the air circulating system of Pedicini in the fuel cell of Frank in order to control and optimize the humidity exiting the electrochemical cell.

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***Claim Rejections - 35 USC § 103***

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Claims 2-5 & 8-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bostaph et al. U.S. Pub. 2003/0031908 as applied to claims 1 & 8 above, in view of Pedicini et al. U.S. Pub. 2001/0008720 and further in view of Barton et al. U.S. Pub. 2003/0022050.

Bostaph teaches a fuel cell system as described hereinabove.

But the reference is silent to a fan and drive unit and a housing for the water recovery device having a clear cross section that increases in the direction of flow.

Pedicini teaches that it is conventional to employ air managing devices in electrochemical cell systems including a circulating fan provided convective air flow both in and out of the housing 20 and to circulate and mix gases (par. 48). The fan speed may be adjusted by a drive unit 100 that can set the speed of the fan as a function of current (par. 60). This air management system is employed to control and optimize the humidity exiting the electrochemical cell (par. 6).

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Barton teaches that housing that decreases in the direction of flow rate compresses the fluid supply providing positive displacement of the fluid to increase control of the flow rate by the operator (Par. 70).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to employ the air circulating system of Pedicini in the fuel cell of Frank in order to control and optimize the humidity exiting the electrochemical cell.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to employ the cross-sectional design of Barton in the water management device of Bostaph in order to providing positive displacement of the fluid to increase control of the flow rate by the operator.

### ***Conclusions***

Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Monique Wills whose telephone number is (703) 305-0073. The Examiner can normally be reached on Monday-Friday from 8:30am to 5:00 pm.

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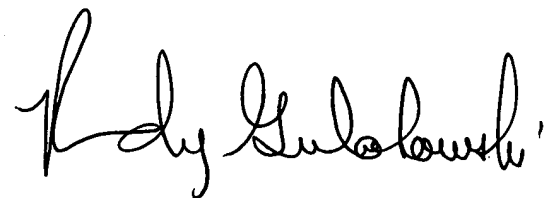
Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-0661.

If attempts to reach Examiner by telephone are unsuccessful, the Examiner's supervisor, Randy Gulakowski, may be reached at 703-308-4333.

The unofficial fax number is (703) 305-3599. The Official fax number for non-final amendments is 703-872-9310. The Official fax number for after final amendments is 703-872-9311.

Mw

09/15/03

A handwritten signature in black ink, appearing to read "Randy Gulakowski", with a stylized, cursive script.

RANDY GULAKOWSKI  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 1700